

R E M A R K S

Claims 11-30 are in the case. Applicants note with appreciation the Examiner's recognition that all of the issues in the case have been discussed at length by both Applicants and the Examiner in several of the previous communications. Applicants also note with appreciation the Examiner's willingness to discuss and resolve issues, indicated by his invitation to have an interview with the undersigned.

The only rejection in the case is that of Claims 11-30 as obvious under 35 U.S.C. §103(a) over Goodenough et al. (U.S. 3,558,503; hereinafter "Goodenough") in view of Dallmier et al. (U.S. 5,683,654; hereinafter "Dallmier").

In order to be fully responsive, the remarks presented in the previous Response regarding points in the Office Action not addressed below (*e.g.*, all of the reasons that Goodenough and Dallmier are incompatible and form an improper combination, *etc.*) are incorporated by reference herein, because this Response will focus on certain issues that appear to underpin the rejection.

As discussed in the previous Response, Paper No. 78 of Interference No. 105,230 does not mention the Dallmier reference at all, but refers to Paper No. 73, and Paper No. 73 never considers Dallmier in combination with Goodenough.

Although perhaps not intended, the Office Action implies that the instant claims are the same as those in the Interference (Page 8, penultimate sentence). The previous Response notes that the process claims of the application were not involved in the Interference, and in any event, present Claims 11-20 are different than those of Claims 1-5, the process claims at the time of the Interference. Shown below is Claim 11, the independent process claim, with underlining and strikethrough indicating the differences of Claim 11 from Claim 1.

114. A process ~~for~~ of producing an aqueous ~~a concentrated stabilized~~ biocidal composition by which comprises adding bromine chloride to an ~~overbased, aqueous~~ alkali metal sulfamate solution formed from water, sulfamic acid and alkali metal base, wherein the pH of said ~~aqueous~~ alkali metal sulfamate solution is in the range of about 13.0 to about 14.0 during said bromine chloride addition ~~such that the pH of the~~

~~resulting biocidal composition is at least 7.~~

A markup in similar fashion is shown below for cancelled Claim 6 and present Claim 21, the independent formulation claim.

216. A stabilized aqueous biocidal formulation preparable, ~~bromine-based biocide prepared~~ by adding bromine chloride to an ~~overbased~~, alkali metal sulfamate solution formed from water, sulfamic acid and alkali metal base, wherein the pH of said alkali metal sulfamate solution is in the range of about 13.0 to about 14.0 during said bromine chloride addition and cooling the solution.

Underscoring that the present claims are different than those in the Interference, we note that Paper No. 78, at Page 16, line 40, observed that Claim 6 "does not recite any pH values." Present Claims 11 and 21 both recite a pH range.

Paper No. 78 refers to a pH of 13.9 for Goodenough (Page 10, lines 9-12, and Page 18, lines 8-11), which pH value is from the calculations in the Second Declaration of McKinnie in the Interference, not from Goodenough itself. The highest pH value expressly disclosed in Goodenough is 10. The Declaration of August 4, 2009, shows that the pH values taught in Goodenough do not inherently reach 13. Even if the Examiner discredits the results of Solution 3 in the Declaration filed on August 4, 2009 (there is no basis for so doing - the hydroxide amount is not a sufficient reason), the results of Solutions 1 and 2 therein still apply. These two solutions show that the pH values obtained in the Examples of Goodenough do not reach values anywhere near 13, but at most 11.55. Since Solutions 1 and 2 should be considered, the remarks made in previous Responses that the stability of the biocide is significantly *lower* for solution made with sodium hydroxide as compared to that made with magnesium hydroxide should stand.

Thus, some of the support for the rejection as set forth in the Interference no longer applies, including the combination with Dallmier, the absence of a pH value in the claim, and the well-theorized but disproven 'pH of 13.9' calculation for Goodenough in the Second Declaration of McKinnie. Therefore, the Interference decision no longer provides a viable basis for the present rejection.

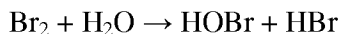
As discussed in previous Responses, BrCl is inherently an equilibrium mixture of

BrCl, Br₂, and Cl₂ under most conditions. Since this is known in the art, the present claims do properly recite BrCl. Because Cl₂ is present in the equilibrium mixture, N-chlorosulfamates are formed. Thus, the claimed formulations and the compositions formed by the claimed processes are different than those of Goodenough, which do not have N-chlorosulfamates because the solutions in Goodenough are made from Br₂.

Regarding Goodenough, Paper No. 78 observes that "Goodenough teaches that the bromide solutions to be treated by the disclosed process may further contain chlorides in the form of ... sodium chloride or calcium chloride." Paper No. 78, Page 8, lines 1-5, and Page 14, lines 6-9. It is noted with appreciation that the Examiner recognizes that the chloride ions provided by sodium chloride and/or calcium chloride cannot form N-chlorosulfamates. Instead, the Office Action postulates that the chloride ions are oxidized so that they can form N-chlorosulfamates, and used this postulated reaction to support the rejection.

In this connection, the Declaration of August 4, 2009, presented the results of a UV study of the reaction of HOCl with bromide ions (Br⁻) to HOBr and chloride ions (Cl⁻) with all of the UV traces overlaid on one graph. In the Declaration of August 1, 2011, each trace was presented separately to better show the disappearance of the peak for HOCl and the emergence and increase of the peak for HOBr. From the last two traces, it is apparent that the reaction to HOBr is complete or nearly complete in 2.25 minutes. In the last trace, at 4.75 minutes, 2.5 minutes after the reaction appeared to be complete, no peak for HOCl is seen. The absence of a peak for HOCl in the last trace shows that there is no reverse reaction of HOBr and chloride ion to form HOCl.

In aqueous solution, bromine disproportionates into HOBr and bromide ions. The Br₂ disproportionation reaction is shown explicitly in Dallmier at column 2, lines 39-42, and is reproduced below:



Thus, in water, the oxidizing form of bromine is HOBr, and the UV results presented in the Declarations show that chloride ions in combination with HOBr do not form HOCl, which in turn means that the Office Action's postulated reaction of bromine (Br₂) and chloride ions (Cl⁻) in water does not occur in the brine solutions of Goodenough.

Applicants respectfully request reconsideration and withdrawal of this rejection in light of the above amendments and remarks.

If any matters remain that require further consideration, the Examiner is requested to telephone the undersigned at the number given below so that such matters may be discussed, and if possible, promptly resolved.

Please continue to address all correspondence in this Application to Albemarle Corporation, at the address of record.

Respectfully submitted,

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